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AWARENESS OF STUDENTS ON PREVENTION OF NOSOCOMIAL INFECTION IN PEDIATRIC WARDS

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ABSTRACT

Hospital-acquired infections are one of the leading causes of preventable morbidity and mortality in neonatal intensive care units. Devices causes infection include catheter-associated blood stream infection (CASIs) and ventilator-associated pneumonia (VAP), are the most common nosocomial infections. Students should be aware of prevention and management of nosocomial infection. The present study conducted to assess the knowledge of final year B.Sc nursing students regarding prevention of nosocomial infection in pediatric wards in selected colleges of Mangalore. The sample size was 100 nursing students. The samples were selected by non-probability convenience sampling technique. The tools used were demographic proforma and structured knowledge questionnaire. The results revealed that majority (88%) of students had moderate level of knowledge, only (12%) had adequate knowledge and none of them were had inadequate knowledge on prevention of nosocomial infection in paediatric wards. The overall mean knowledge score found was (84.63%) and also reveals that the all (100%) students had adequate knowledge in the area introduction and meaning, the majority (87.88%) were had adequate knowledge in the area of Common bacterial infections and mode of transmission and majority (81.50%) were had adequate knowledge in Preventive management, and there was no significant association between knowledge and demographic variables.

KEY WORDS

Assess; knowledge; nosocomial infection; nursing students.

INTRODUCTION

Health is the level of functional or metabolic efficiency of a living being. Health is both responsibility as well as right. It is the responsibility of those with power and right of those without it [1].The promotion of health is social, and political as well as individual responsibility. Health does not mean the only physical well-being of the individual but also include social, emotional, spiritual and cultural well-being. This is a whole of life view and includes the cyclical concept of life-death-life [2].

Nosocomial Infection or Hospital acquired infection are those acquired during a patient's hospitalization and not present or incubating at admission. All infection diagnosed 48 hours after admission till 72 hours after discharge should be considered as nosocomial. Measure employed to increase the survival rate in small babies have added greatly to risks of nosocomial infections such as IV drip, assisted respiration, use of broad spectrum antibiotics, Parental Nutrition and extensive surgical maneuvers on babies with congenital malformations [3].

Infections occur frequently in the neonate causing illness and possibly death. There are several reasons why infection in the neonate can be so devastating. The variety of organisms potentially present in the environment of the hospital and community may also occur in normal neonates, diagnosis may be delayed

and the infection allowed to become critical before treatment is instituted, difficulty in treating some infections because of a lack of specific therapeutic agents[3].

Neonates can also acquire nosocomial infection after delivery (post natal infection) form other neonates, nursing personnel, their mother, or contaminated supplies and equipments. Even with isolation technique including thorough hand washing, sterile supplies of equipments and provision of individual equipment's for neonates, nosocomial infections can occur [3].

Surgical wound infection following diagnostic & therapeutic procedures, e.g. Urinary tract catheterization or instrumentation, tracheostomy, continuous IV therapy and surgery. These infections are a significant problem in neonatal intensive care unit because of frequent intervention and use of that bypass skin and mucosal barriers, urinary catheters and mechanical ventilation. The nosocomial infections increase duration of stay in the hospital and also the cost of therapy overall mortality attribute to nosocomial infection is about 40%[4].

Hospital-acquired infections are one of the leading causes of preventable morbidity and mortality in neonatal intensive care units. Devices causes infection include catheter-associated blood stream infection (CASIs) and ventilator-associated pneumonia (VAP), are the most common nosocomial infections [5].

Prevention and control measures of nosocomial infection in new born are provision of graded care facilities, including an observation unit, an intensive care unit, isolation, use of prophylactic antibiotics in high risk babies and surveillance programme. Use of gowns, cap, masks and proper hand washing. Ward floor, toilet, wash basins, sinks etc., need to be kept clean by frequent washing. Health education session for the parents, attenders and also for the staff nurses[6].

The Centres for Disease Control and Prevention (CDC): National Nosocomial Infections Surveillance (NNIS), Dialysis Surveillance Network (DSN) and National Surveillance System for Healthcare Workers (NaSH).Prevention and control measures of nosocomial infection are provision of graded care facilities, including an observation unit, an intensive care unit, isolation, use of prophylactic antibiotics in high risk babies and surveillance programme. Use of gowns, cap, masks and proper hand washing. Ward floor, toilet, wash basins, sinks etc., need to be kept clean by frequent washing. Health education session for the parents, attenders and also for the staff nurses [7].

Healthcare-associated infections (HAI) are defined as infections not present and without evidence of incubation at the time of admission to a healthcare setting. The different terms are used for nosocomial, hospital acquired or hospital-onset infections. Most of the infection occurred after 48 hours of admission and after the discharge. Hospital- based programs like surveillance, prevention, management and control developed in 1950. In 2005, the National Healthcare Safety Network (NHSN) was established with the purpose of integrating and succeeding previous survey[7].

Health care-associated infections are of important in medical field to decrease the mortality and morbidity rate. They effect any part of the body, with associated devices like blood product or medical devices[8]. Over 1.4 million people worldwide are suffering from hospital acquired infections or nosocomial infections. In India, nosocomial infection rate is at over 25 per cent it leads to more mortality and morbidity rate [9].

The Global Patient Health Challenge Program was initiated in India last month. Complications leads to 3.5 to 16.6 per cent estimated in admitted patients worldwide. These can be found among patients admitted to Intensive care unit, labour rooms among patients undergoing invasive procedures or those on immunosuppressive drugs. Broomsfield Hospital in the UK has reported decrease in infections due to periodical hand cleaning and taking precautions before making patient contact by doctors and caregivers regarding[8]

The nurse should be aware of the problem of nosocomial infection, their effects on patient morbidity, mortality and increased hospital costs, as well as the legal aspects concerning them. The nurse also should be knowledgeable about the types of infections seen most often, the common pathogens and how they are transmitted, factors that predispose a patient to a nosocomial infection, how to recognize persons at risk of infection, and the prevention and

control measures necessary to decrease the incidence of nosocomial infections[9].

At the group level the barriers to practice hygiene was attributed to lack of education, high work load and lack of role model among the senior staff. It was proved that a high workload was associated with poor compliance to hand washing[10].A prospective cohort study was conducted to determine whether low staffing level increases the infection risk in critical care. The study revealed that overall infection rate was 64.5 episodes per 1000 patients-days. The researcher had come to a conclusion that 26.7% of all infections could be avoided if the nurse-to-patient ratio was maintained >2.2[11].

Hand hygiene has been cited by WHO and Centers for Disease Control and Prevention as a cost effective and important hygiene measure in preventing the infectious diseases[12].Hand washing is the simplest and the basic procedure taught at the beginning of the nursing course. Although these concepts are taught in depth in class room environment, they are often disregarded in clinical setting[13].The current evidence of hand hygiene compliance noted that rates of compliance is low, that is in non ICU settings compliance ranged from 16 % to 60 % and in ICUs 28 % to 81%[14].In addition, health professionals mistakenly believe they wash their hands more than they usually do.On the US-based Centers for Disease Control and Prevention, there is an increase in nosocomial infections by 36 per cent in the last 20 years[15].

Out of these, 1.6 million deaths occur due to neonatal infections. The major proportions of these are hospital acquired or healthcare associated infections (HAI). As per National Neonatal-Perinatal Database (NNPD), in the year 2002-03, systemic infections (18.6%) were the second most common cause of neonatal deaths [16]. Each year 20% of the world's newborns are born in our country and 30% of the 3.9 million neonatal deaths occur in India. Neonatal infections have been the major cause of neonatal deaths in our country. In India systemic infections have an incidence of 3.8% among the newborns of which sepsis account for 61.5% of cases[17].

The sources of nosocomial infections can be classified as endogenous and exogenous. Endogenous infections are those that are acquired from the individual patient's own flora. Exogenous sources are outside the patient and may include hospital staff, other patients, visitors, equipment, and hospital environment [18].

Nurses are the heart and hands of the health team and they are sensitive to the needs of the clients that enable them to have a good nurse-client relationship by being more emphatic as well as rendering services in hands-on-manner. Nurses comprise the first line care providers to the patients, who apart from giving drugs or rendering routine care to patients, also perform sterilisation and disinfection duties. This would mean constant contact and exposure with various nosocomial infections present in the hospital setting. It is the duty and responsibility of nurse to strictly comply and adhere to the hospital's preventive measures against nosocomial infections and other infectious diseases. Furthermore, nurses as healthcare workers should be aware of the ways to slow down or prevent transmission of infectious diseases and be knowledgeable of its potential risk to the client and hospital staffs. There is a great need to assess and evaluate their knowledge regarding infection control on a periodic or timely basis. More than this, need of the hour is to assess their practices regarding implementation of gained knowledge[19].

OBJECTIVES

1. To assess the level of knowledge of nursing students regarding prevention of nosocomial infection in pediatric wards
2. To find out the association between knowledge scores with the selected demographic variables.

MATERIALS AND METHODS

A descriptive approach with non-experimental (pre-assessment) design was adopted to assess the knowledge of final year B.Sc nursing students regarding prevention of nosocomial infection in pediatric wards in selected colleges of Mangalore. The sample comprised of 100 nursing students in selected colleges of Mangalore. Convenience sampling technique was used to select the samples. The reliability coefficient was calculated by using Karl Pearson's co-relation co-efficient, spilt half method. The reliability co-efficient was found to be (r_{10} =0.87).

To get the co-operation of the nursing students, self-introduction and orientation about the investigators study topic were given. The participants were explained and consent was obtained from the study participants. The participants were assured about confidentiality of their responses. Data was collected using demographic proforma and structured knowledge questionnaire. Data was analysed using descriptive and inferential statistics.

RESULTS

Section I: Sample characteristics

The study reveals that the highest percentage (95%) nursing students were in the age group of 20-22 years,(5%) in the 23-25 years and 0%of students were in the age group of below 20 years and 23- 25 years. Highest percentage (95%) were females and (5%) were males and highest percentage (45%) were in Christian, (34%) were in Hindu,(21%) were in Muslim. Highest percentage (94 %) was not attended the seminar/workshop and (6%) were attended.

Section II: Level of knowledge of the nursing students on prevention of nosocomial infection in paediatric wards.

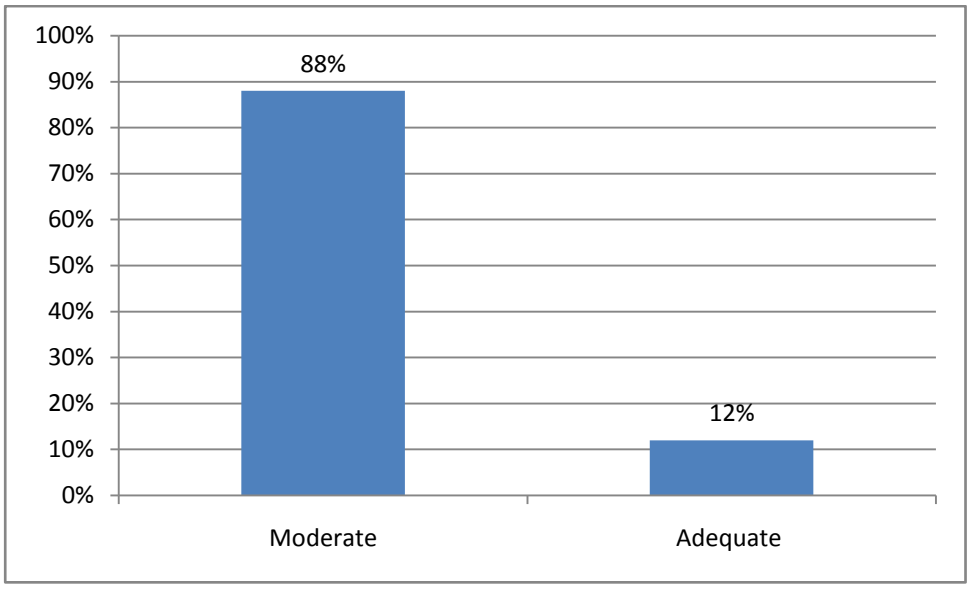

Fig 1: Distribution of level of knowledge score

Fig 1 shows that maximum percentage (88.00%) of students had moderate level of knowledge on prevention of nosocomial infection in pediatric wards, and only(12%) had adequate knowledge on prevention of nosocomial infection in pediatric wards and none of were had inadequate knowledge on prevention of nosocomial infection in pediatric wards.

Table 1: Overall mean, median, SD and mean percentage of knowledge score N=100

Max possible score	Range	Mean	Median	SD	Mean%
40.00	40-23	33.85	35.0	3.46	84.63

Data in table 1 shows that the range of knowledge scores was in between 23-45, and mean knowledge score of subjects was 33.85, median 35.0, standard deviation 3.46 and mean percentage is 84.63.

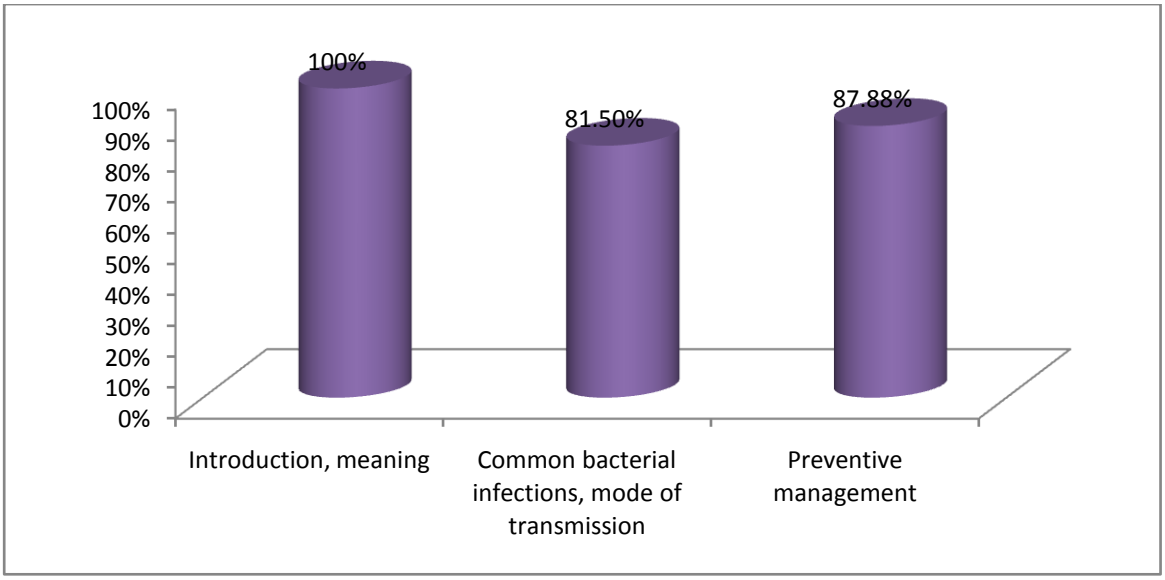

Fig 2: Area wise distribution of knowledge score of participants.

Fig 2 depicts that the study reveals that majority (88%) of students had moderate level of knowledge, only (12%) had adequate knowledge and none of them were had inadequate knowledge on prevention of nosocomial infection in pediatric wards. The overall mean knowledge score found was (84.63%).and also reveals that the all (100%) students had adequate knowledge in the area introduction and meaning, the majority (87.88%) were had adequate knowledge in the area of Common bacterial infections and mode of transmission and majority (81.50%) were had adequate knowledge in Preventive management.

Section III: Association between level of knowledge score and demographic variables

The study found out that there was no significant association between level of knowledge and selected demographic variables.

DISCUSSION

The study reveals that maximum percentage (88%) of students had moderate level of knowledge, only (12%) had adequate knowledge and none of were had inadequate knowledge on prevention of nosocomial infection in pediatric wards. And The overall mean knowledge score found was 84.63%.and also reveals that the all (100%) students had knowledge in the area introduction and meaning, the majority (87.88%) were had knowledge in the area Common bacterial infections, mode of transmission and majority (81.50%) were had knowledge in Preventive management.

It was supported by cross sectional study was conducted in Department of Epidemiology and Public Health, Rouen University Hospital, France to assess knowledge among healthcare students on prevention of nosocomial Infection. The result revealed that the mean overall score (±SD) was 21.5 ± 2.84. Nursing students had a better mean overall score (23.2 ± 2.35). The mean scores (±SD) for the component sections of the questionnaire were 7.4 ± 1.26 for hand hygiene, 8.5 ± 1.4 for standard precautions, and 5.7 ± 1.55 for nosocomial infections (P <.001). Nursing students achieved the adequate overall score [20].

It was found out that there was no significant association between level of knowledge and selected demographic variables. It was supported by a retrospective survey conducted to assess hospital acquired infection and found out that there was no significant association between level of knowledge and selected demographic variables [21].

CONCLUSION

In the present study, students had adequate level of knowledge on prevention of nosocomial infection in paediatric wards. Updating the knowledge is essential by providing resource material, conference and workshops, which will help them to prevent

nosocomial infection in paediatric wards during their clinical practice.

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